

Serial No. 09/913,625
Docket No. SHIG C11119
Amendment D under Rule 116

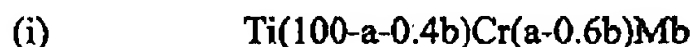
AMENDMENTS TO THE CLAIMS:

Please cancel claim 34, without prejudice. Please amend claim 22, as follows:

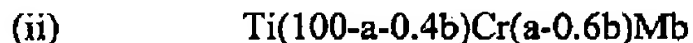
Claims 1-21 (previously canceled)

Claim 22 (currently amended): A process for producing a hydrogen storage metal alloy having a main phase with body-centered cubic structure wherein the body-centered cubic structure phase enables adsorption and desorption of hydrogen, comprising the steps of:

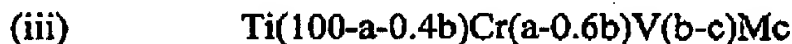
(1) providing a starting mixture which has a composition of the following general composition formula:



wherein M is vanadium (V), provided that $20 \leq a \text{ (at\%)} \leq 80$, and $0 < b \text{ (at\%)} < 10$; or

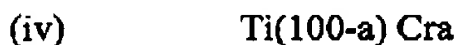


wherein M is at least a member selected from molybdenum (Mo) and tungsten (W), wherein $20 \leq a \text{ (at\%)} \leq 80$, $0 < b \text{ (at\%)} < 5$, and when M is W said metal alloy has a hydrogen storage capacity of at least 2.6 mass % or more; or



wherein M is at least a member selected from molybdenum (Mo) and tungsten (W), wherein $[[20 \leq a \text{ (at\%)} \leq 80, 0 \leq b \text{ (at\%)} \leq 10, \text{ and } 0 \leq c \text{ (at\%)} < 5,]]$

$20 \leq a \text{ (at\%)} \leq 80$, $0 < b \text{ (at\%)} \leq 10$, and $0 < c \text{ (at\%)} < 5$; or



wherein $20 \leq a \text{ (at\%)} \leq 80$;

HAYES SOLOWAY P.C.
130 W. CUSHING STREET
TUCSON, AZ 85701
TEL. 520.882.7623
FAX. 520.882.7643

175 CANAL STREET
MANCHESTER, NH 03101
TEL. 603.668.1400
FAX. 603.668.8567

Serial No. 09/913,625
Docket No. SHIG C11119
Amendment D under Rule 116

(2) repeatedly melting and solidifying the starting mixture to form a heated homogeneous alloy;

(3) maintaining the heated homogeneous alloy at a temperature of at least 1400°C within a range just below the melting point of the alloy for a predetermined time of from 1 minute to 2 hours; and

(4) rapidly cooling the alloy from step (3) to 0°C by quenching in iced water.

Claim 23 (previously presented): The process of Claim 22 wherein said melting and solidifying are carried out repeatedly for predetermined times in step (2).

Claims 24-25 (previously canceled)

Claim 26 (previously presented): The process of Claim 22 wherein the starting mixture contains an additional element X admixed at its atom % concentration, d (at%), ranging within $0 \leq d \text{ (at\%)} \leq 20$ and includes at least one or more other elements selected from the group consisting of Al, Ge, Ga, Si, Au and Pt.

Claim 27 (previously presented): The process of Claim 22 wherein the starting mixture contains an additional element T admixed at its atom % concentration, e (at%), ranging within $0 \leq e \text{ (at\%)} \leq 10$ and includes at least one or more other elements selected from the group consisting of Nb, Ta, Mn, Fe, Al, B, C, Co, Cu, Ga, Ge, a lanthanoid metal, N, Ni, P, and Si.

Claim 28 (previously presented): The process of Claim 26 wherein the starting mixture contains an additional element T admixed at its atom % concentration, e (at%), ranging within $0 \leq e \text{ (at\%)} \leq 10$ and includes at least one or more other elements selected from the

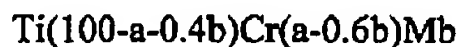
HAYES SOLOWAY P.C.
130 W. CUSHING STREET
TUCSON, AZ 85701
TEL. 520.882.7623
FAX. 520.882.7643

175 CANAL STREET
MANCHESTER, NH 03101
TEL. 603.668.1400
FAX. 603.668.8567

Serial No. 09/913,625
Docket No. SHIG C11119
Amendment D under Rule 116

group consisting of Nb, Ta, Mn, Fe, Al, B, C, Co, Cu, Ga, Ge, a lanthanoid metal, N, Ni, P, and Si.

Claim 29 (previously presented): The process of Claim 22 wherein the starting mixture has a composition of the following general composition formula:



wherein M is vanadium (V), provided that $20 \leq a \text{ (at\%)} \leq 80$, and $0 < b \text{ (at\%)} < 10$.

Claim 30 (previously presented): The process of Claim 29 wherein a level of the constituent element V contained in the mixture is within a range of 6 ± 2 at %.

Claim 31 (previously presented): The process of Claim 22 wherein the starting mixture has a composition of the following general composition formula:



wherein M is at least a member selected from molybdenum (Mo) and tungsten (W), wherein $20 \leq a \text{ (at\%)} \leq 80$, $0 < b \text{ (at\%)} < 5$, and when M is W said resulting metal alloy has the hydrogen storage capacity of at least 2.6 mass % or more.

Claim 32 (previously presented): The process of Claim 31 wherein a level each of the constituent element Mo and/or W contained in the starting mixture is within a range of 3 ± 1.5 at %.

Claim 33 (previously canceled)

Claim 34 (canceled)

Claims 35-36 (previously canceled)

Claim 37 (previously presented): The process of Claim 22 wherein the predetermined time range in step (3) is from 1 minute to 1.9 hours.

HAYES SOLOWAY P.C.
130 W. CUSHING STREET
TUCSON, AZ 85701
TEL. 520.882.7623
FAX. 520.882.7643

175 CANAL STREET
MANCHESTER, NH 03101
TEL. 603.668.1400
FAX. 603.668.8567

Serial No. 09/913,625
Docket No. SHIG C11119
Amendment D under Rule 116

Claim 38 (previously presented): The process of Claim 22 wherein the predetermined time range in step (3) is from 1 minute to 100 minutes.

Claim 39 (previously presented): The process of Claim 22 wherein the predetermined time range in step (3) is from 1 minute to 1 hour.

HAYES SOLOWAY P.C.
130 W. CUSHING STREET
TUCSON, AZ 85701
TEL. 520.882.7623
FAX. 520.882.7643

175 CANAL STREET
MANCHESTER, NH 03101
TEL. 603.668.1400
FAX. 603.668.8557